# Nature's Call

*An Activity Newsletter for Kids by Utah's Project WILD--Spring 2000*

## *Utah's Super Shorebirds!*

It's a plane! It's Superman! No, it's a bird ... actually a Super Shorebird! "What's a shorebird?" you may ask. Well, like their name tells us, shorebirds are a group of birds that spend much of their lives along the shores of water bodies such as oceans, lakes, marshes and rivers. Some even live on "seas" of grass instead of water.

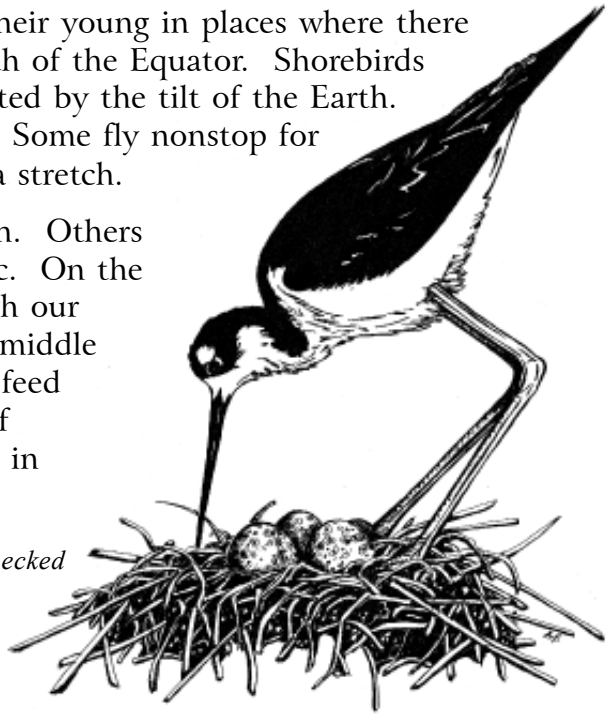
When people picture shorebirds, many think of small, brownish-gray birds skittering across a mudflat, probing the mud with their bills like little robots as they search for food. Shorebirds like these though are only a few of the nearly 50 different types of shorebirds found in North America. Shorebirds include birds such as avocets, stilts, plovers, sandpipers, phalaropes and oystercatchers. Within these groups are others called godwits, curlews, whimbrels, willets, yellowlegs, surfbirds, turnstones, dunlins and more! Whatever their name, shorebirds have some truly amazing adaptations that make them super heros of the animal world.

Shorebirds, as you might guess, come in many shapes, sizes and colors, and so do their bills. These different shaped bills are often used to tell which shorebird is which. Their bills can be long or short, straight or curved, either upwards or downwards, thin and pointed or thick like a bill of a pigeon, in all possible combinations. Each type of bill leads to a different style of feeding (eating) - gleaners, probers, sweepers or priors - depending on how they feed. Food for shorebirds includes crustaceans, insects, snails, worms, clams and other creatures that live in the mud or sand along shorelines. On the edges of the Great Salt Lake, brine flies and brine shrimp are plentiful fare.

How shorebirds feed is super indeed, but what makes them especially worthy of their super hero status is the incredible migratory journeys they make each year. Today a group shorebirds may be darting around the edge of a pond near your home, but within the last week or two, these same birds may have been probing the mud of some far away country such as Argentina, Brazil, Surinam, Venezuela or Mexico?

Shorebirds migrate to avoid the cold of winter and raise their young in places where there is plenty of food. When it's summer here, it's winter south of the Equator. Shorebirds are smart and take advantage of this seasonal pattern created by the tilt of the Earth. Round-trip though, many make journeys of 15,000 miles! Some fly nonstop for as long as 60 hours and traveling as far as 2,500 miles in a stretch.

When flying north, some shorebirds stop and nest in Utah. Others continue further north to the Canadian and Alaskan Arctic. On the way they need to rest and refuel. To those passing through our state, the Great Salt Lake is like a giant truck stop in the middle of nowhere. For shorebirds fuel is body fat and here they feed like hungry teenagers, doubling their weight in a couple of weeks! So many shorebirds visit the Great Salt Lake that in 1991 it was listed as a vital wetland shorebird resting site called a Western Hemispheric Shorebird Reserve.



*Black-necked Stilt*

**Turn the page to learn what its like to be a migrating shorebird and the importance of helping to save wetlands.**

# *Days of Our Lives: Shorebird Soap Operas*

Shorebirds are among a variety of animals known for their remarkable seasonal migrations between their southern winter homes and their summer breeding grounds. The migratory routes of birds are referred to as flyways. In North America, there are four main flyways: the Pacific, Central, Mississippi and Atlantic flyways. Flyways are general routes along which the majority of birds travel on their annual journeys. Most shorebirds require the presence of wetlands on both their wintering and breeding grounds. They also need wetlands in between during migration since their winter and summer homes are often thousands of miles apart. Wetland areas where shorebirds concentrate to feed and rest during their migratory journeys are called stopover sites or "staging" areas. When staging, shorebirds eat lots of protein rich creatures called invertebrates to put on layers and layers of fat for energy to continue migrating. Some also molt their feathers (old worn-out feathers are replaced with fresh new ones). Because shorebirds are very dependent on wetlands, loss of wetland habitat is a major threat to their survival.

Like on TV soap operas, shorebirds face many perils during their lives. Play the game below with three or four of your friends to learn more about shorebird survival. You will need a die, a game piece for each player, and about forty dry beans that represent eggs. Start at the wintering grounds. Taking turns, roll the die and advance north along the flyway the number of spaces shown. If you land on a space with instructions, follow the instructions in the space. When each player gets to the breeding grounds, they get four eggs (beans). When each player leaves the breeding grounds and begins migrating south back to their winter home, each egg they have becomes a young shorebird. The winner of the game is the shorebird that has the most young left upon returning to the wintering grounds.

Wintering Grounds

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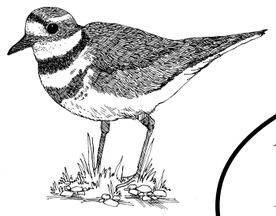
S

**End**

A farmer registered a wetland on his property into a government wetlands conservation program. A good food supply there helped your young reach the winter grounds. Add two young shorebirds.

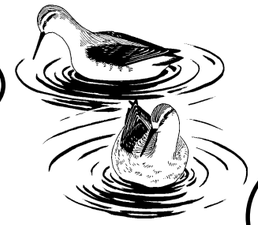
**Start**

A wet year at a wetland stopover site has resulted in a lot of insects for you to eat. Pick up (lay) an extra egg when you get to the breeding grounds.



*Killdeer*

A critical wetland stopover site was degraded when a new highway was built. Half of your young are not able to get enough fuel to make the journey back to the wintering grounds.

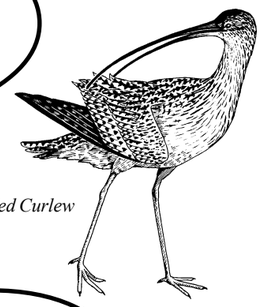


*Wilson's Phalaropes*

**Eggs become young shorebirds**

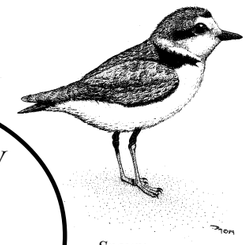
You managed to scare off a cow that almost trampled your nest. Pick up one more egg.

Loose running domestic dogs from a housing development built near the marsh chased you off your nest. You lose two eggs which overheated while you were off the nest.



*Long-billed Curlew*

You defended your eggs from a weasel by pretenting to have an injured wing to distract the predator. Pick up two more eggs.

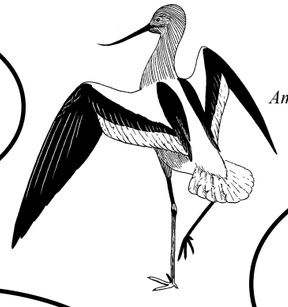


*Snowy Plover*

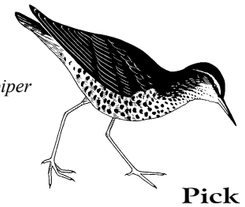
Breeding Grounds

A person riding an ATV through the nesting area accidentally smashed your nest with a tire. You lose all your eggs.

A spring storm has blown you off course. You'll arrive late at the breeding grounds. Pick up only three eggs when you get there.



*American Avocet*



*Spotted Sandpiper*

Human access to the nesting beach has been restricted. You are able to double clutch (produce two sets of chicks in a row). Pick up four extra eggs.

**Pick up (Lay) Eggs**

A wetland stopover site has been protected as a preserve. You are able to feed without being disturbed by people and can build up fat needed to continue your journey. Pick up (lay) an extra egg when you reach the breeding grounds.

Unexpected high water levels flooded your nest. Two eggs are destroyed.

A coastal estuary has become polluted by toxins in runoff from urban areas and farmland. It is no longer a safe stopover site. Your young may hatch with deformities. Pick up only two beans on the breeding grounds.

A critical wetland "refueling" site has been drained and plowed. You won't have enough energy to continue the journey.

You chose a well camouflaged nest site and your eggs are safe. Add one egg.

A fox discovered your nest and destroyed all your eggs.

# *Migration Math* — *Shorebirds: Avian Olympians!*

**Shorebirds are true avian olympians**. During migration they make incredible journeys between their winter and summer homes - and in record-breaking times! Try these math problems to learn more about the amazing abilities of shorebirds!

**1) Fat Loading:** Before beginning their migratory journeys, shorebirds need to put on a lot of fat to burn for energy on the way. For example, Pacific golden plovers, which migrate non-stop from Hawaii to Alaska, need to increase their body weight by one-third before they can leave. First, calculate your weight in kilograms (1 kg = 2.2 lbs). Next, figure out how many kilograms you would need to gain to increase your weight by one-third.

a. $\frac{1\text{kg}}{2.2\text{ lbs}}$ X _____ (your weight in lbs) = _____ (your weight in kilograms)

b. $\frac{1}{3}$ X _____ (your weight in kg) = _____ (# kilograms you would need to gain)

For a challenge, change this number back to pounds (lbs). Find something to lift that weighs that much!

**2) Non-stop Travel:** Some shorebirds fly nonstop for days during migration. The American golden plover, for example, flies nonstop for 48 hours to reach its breeding grounds. Assuming you can flap your arms like wings 10 times in 10 seconds, flying non-stop, how many flaps would that be in one day?

$$\frac{10\text{ flaps}}{10\text{ sec}} \text{ X } \frac{60\text{ sec}}{1\text{ min}} \text{ X } \frac{60\text{ min}}{1\text{ hour}} \text{ X } \frac{24\text{ hours}}{1\text{ day}} = \text{\_\_\_\_\_ (\# flaps per day)}$$

See how many times you can flap your wings (arms) before getting tired.

**3) Fast and Long-Distance Travelers:** Sanderlings are long-distance migrators. They travel north about 7,500 kilometers (km) from Lima, Peru to the Oregon coast where some of them breed in 230 hours or about 10 days. Find a globe or world map to see how far that really is. If the fastest runner in your school can run the 50 meter (m) dash in 15 seconds, how long, in minutes (60 sec /min), would it take that person to travel one kilometer (km) (1 km = 1,000 m)?

a. $\frac{15\text{ sec}}{50\text{ m}}$ X $\frac{1\text{ min}}{60\text{ sec}}$ X 1,000 m = _____ (# minutes to run 1, 000 meters or one kilometer)

How many days would it take the runner to travel 7,500 kilometers (and that's at full speed)?

b. 7,500 km X _____ (# minutes from last question) X $\frac{1\text{ day}}{1{,}440\text{ min}}$ = _____ (number of days to travel 7,500 km)

**4) Fuel Efficiency:** A person burns 60 calories (cal) running one kilometer. Multiplying 60 calories per kilomenter by 7,500 kilometers means that for the trip in the last question the runner would need to burn 450,000 calories. If one gram (g)of fat produces nine calories, how many grams of fat would the runner need to gain before making this trip?

a. 450,000 cal X $\frac{1\text{ g}}{9\text{ cal}}$ = _____ (# of grams of fat needed for burning) (That's 50 kg or 110 lbs of fat!)

A golden plover can travel 3,900 kilomenters (2,400 miles) in 48 continuous hours of flight. It uses only 60 grams of body fat for the journey. How many calories does a golden plover burn per kilometer?

b. $\frac{60\text{ g}}{3{,}900\text{ km}}$ X $\frac{9\text{ cal}}{1\text{ g}}$ = _____ (# calories per kilometer burned by the golden plover)

c. Does this shorebird burn a lot of calories per kilomenter or only a few calories per kilometer compared to a person?

*Answers: 1) a. & b. vary with student weight; 2) 86,400 flaps/day; 3) a. 5 min, b. 26 days; 4) a. 50,000 grams, b. 0.14 calories per kilomenter, c. only a few.*



Adapted with permission from the *Arctic Nesting Shorebirds* Curriculum produced by the U.S. Fish and Wildlife Service.